

## **SR. STRUCTURAL ENGINEER**

### **DISTINGUISHING FEATURES**

The fundamental reason the Sr. Structural Engineer exists is to serve as Team Leader in coordinating multidisciplinary plan review (civil, fire, planning, native plant) activities, in addition to structural plans review and building plans review responsibilities. This position requires technical direction of Structural Plans Examiners. Sr. Structural Engineer provides professional level structural engineering skill leadership and work primarily in the technical review of complex plans for new construction, alterations, and repairs to ensure compliance with building codes and national standards. Provides technical advice and assistance to architects, engineers, and contractors on code compliance problems and to field inspectors in the interpretation of construction plans and in the resolution of difficult construction code interpretation problems. The Sr. Structural Engineer's work is performed under the general supervision of a Coordination Manager in Planning and Development Services. This position is not supervisory, however, may have lead responsibilities depending on assignment. The Sr. Structural Engineer serves as structural engineering skill leader as well as building plans project coordinator. This position is differentiated from the Structural Plans Examiner in that the Structural Plans Examiner deals with structural engineering problems of lesser complexity and less detailed interpretation of structural engineering theory to the structural engineering problem solving process.

### **ESSENTIAL FUNCTIONS**

Reviews and examines complex plans and specifications to determine if they comply with life safety and public access provisions of City and national codes. Provides alternative design criteria and solutions to non-conforming plan.

Performs engineering computations to analyze: applied loads; building structural systems; members and assemblies for structural integrity; and compliance with applicable construction codes.

Manages the interdisciplinary review (planning, fire safety, native plant, civil) of Building Plan Projects construction documents from initial submittal through approval of final plans, and through the construction phase.

Evaluates building structural systems for both geometric integrity, and internal /external stresses resulting from applied gravity & lateral loads including but not limited to superimposed dead, live, wind, seismic, thermal, centrifugal and earth pressure loads.

Functions as a project coordinator (fire safety, planning, civil, native plant) of the Building Plans construction documents from initial plan submittal through approval of the final plans, and through the construction phase.

Conducts field and site visits upon request by the Inspection Department to evaluate inquiries, (or conditions, or deficiencies,) identify potential problems and suggest corrective measures.

Studies & evaluates site-specific geotechnical investigation reports and recommended construction design values as well as bearing strata suitability. Determines if special inspection is required for special "grading, compaction and fill" of existing undisturbed soil and imported structural fill. Where special inspection is required sets limits & parameters of special inspection in accordance to applicable codes and soils mechanics.

Performs engineering computations to analyze building structural systems, structural members, connections and assemblies for structural integrity and compliance with applicable construction codes.

Identifies inadequacies found on structural and architectural documents and specifications and outlines corrective remedies to meet city adopted building codes.

Investigates the suitability of materials and methods of construction for compliance with construction codes.

Responds to questions related to construction codes, department policies and procedures that are submitted by the public.

Holds conferences with developers, owners, architects, and engineers and residents relating to plan design data, code interpretations, and the resolution of design problems affecting life safety. (Meetings with residents is the key difference from Structural plans reviewer)

Recommends changes in codes to resolve design and interpretation problems and to accommodate and control new materials and new design concepts.

Approves alternate methods or materials for code compliance.

Demonstrates continuous effort to improve operations, decrease turnaround times, streamline work processes, and works cooperatively and jointly to provide quality seamless and consistent customer service.

Reviews residential and commercial plans for compliance with provisions of adopted UBC, UMC, UPC, NEC, UFC, ADA and administrative policies.

Assists Civil Plan Review Department and Capital Project Management Department in reviewing: Bridges; Retaining walls; Head walls; Flood walls; Special Traffic Signs and Structures; Culverts; Guard Rails; Drainage structures; and soil stabilizing structures. Review of plans for departments outside building department requires thorough knowledge of: "City of Scottsdale Design Standards and Policies Manual"; "Supplemental Standard details and Specifications for Public Work Construction"; "American Association Of State Highway and Transportation Officials Standard Specifications for Highway Bridges"; "Arizona Department of Transportation Standard Drawings"; and "Maricopa Association of Governors Specifications".

Be a motivated employee with ability to self-study to update his/her knowledge of structural engineering with evolving engineering technology, and continuous changes of construction codes. Also attend seminars and study to keep up with continuous modifications and changes to Uniform Building Code; American Concrete Institute Building Code Requirements and other literature; American Institute of Steel Construction manual and all related areas in hot rolled steel shape construction; Building Code Requirements for Masonry Structures; and National Design Specification for Wood Construction. Also shall be familiar with PTI, CRSI, SJI, SDI, AWS, AISI, and APA publications and continuously keep updating to latest editions of all adopted building codes.

## **MINIMUM QUALIFICATIONS**

### **Knowledge, Skills, and Abilities**

Knowledge of:

Building construction, standard construction materials and advanced analysis and design concepts including computerized design calculations.

Basic structural engineering in the design of reinforced concrete, steel, masonry, and timber as applied to construction of buildings and structures.

Nationally recognized codes and standards and related city ordinances, such as the Uniform Building code, NFPA Standards, AISC.AISI. AITC, CRSI, ACI, SDI, SJI, PTI and NDS.

Ability to:

Operate a variety of standard office equipment, including a personal computer, a variety of computer software and other equipment essential to performing daily activities that requires continuous and repetitive eye and arm or hand movement.

Establish and maintain effective working relationships with city staff, residents, design and construction community as well as citizens.

Listen and communicate effectively with a diverse group of people.

Use professional judgment and common sense in the application and enforcement of the intent of code requirements.

Objectively interpret and consistently apply codes requirements and related standards in accordance with department policies.

Read and accurately interpret building construction plans and specifications of any complexity.

Maintain regular consistent attendance and punctuality.

### **Education & Experience**

Any combination of education and experience equivalent to a bachelor's degree in Structural, Architectural or Civil Engineering or related fields with five years of experience in building construction industry relating to structural engineering for buildings or similar structure.

Must have Arizona professional registration as a Structural Engineer or Civil Engineer at the time of hire.

FLSA Status: Exempt

HR Ordinance Status: Unclassified